**IN THE SPECIFICATION:**

Please amend [Para 4] as follows:

In recent years, magnetic disk drives have become smaller and have acquired a larger storage capacity. It is therefore increasingly demanded that [[the]] magnetic disk drives should magnetically reproduce data from disks at higher sensitivity. Developed recently as a magnetic head with use of a magnetoresistive effect is the GMR head (also known as spin-valve head).

Please amend [Para 5] as follows:

The head element of the GMR head has a spin-valve film that is only 20 nm thick. The head element is inevitably very weak to ESD ~~due to~~ as a result of static electricity. Consequently, the GMR head has a withstand voltage of only about 5 V, which is far smaller than that (about 100 V) of the inductive thin-film heads that were widely used before the GMR ~~head has come~~ came into general use.

Please amend [Para 6] as follows:

The GMR head has a breakdown mode, as the studies made hitherto [[made]] reveal. The breakdown is a magnetic breakdown that results from the large-current magnetic field caused by the above-mentioned ESD. The magnetic breakdown is a phenomenon in which the magnetic field generated from a large current impairs the magnetic stability in the spin-valve film, inevitably forming a magnetic domain, ~~though~~ although the spin-valve film is not physically

broken.

Please amend [Para 7] as follows:

More specifically, the GMR element has a fixed layer (PIN layer), a free layer, and an anti-ferromagnetic layer. The GMR element generates a positive output when its resistance increases as the fixed layer and the free layer are magnetized in [[the]] opposite directions. It generates a negative output when its resistance decreases as the fixed layer and the free layer are magnetized in the same direction. The fixed layer is oriented, opposing the signal magnetic flux emanating from a recording medium that lies at right angles to the track-width direction, because the anti-ferromagnetic layer achieves exchange coupling. By contrast, the free layer is oriented[[,]] parallel to the signal magnetic flux emanating from a recording medium[[,]] or parallel to the track-width direction, because permanent magnets are provided at the ends of the free layer to control the magnetic domain. Hence, the magnetization direction of the fixed layer is important, determining the polarity (positive or negative) of the output waveform.

Please amend paragraph [Para 8] as follows:

When an ESD flows in the fixed layer, a magnetic field of the opposite direction is generated, inverting the magnetization direction (PIN direction) of the fixed layer. Namely, magnetic breakdown (PIN inversion) takes place. The magnetic breakdown results in neither resistance change nor shape change, but causes an abnormal waveform [[on]] <u>in</u> the output of the

GMR element. For example, the magnetic breakdown makes the reproduced waveform unstable or changes the amplitudes of the positive and negative halves of the reproduced waveform ~~reproduced~~. If this magnetic breakdown occurs, the magnetic head cannot correctly detect the data. This causes errors in the data or makes it impossible to reproduce the servo signals. Then, the magnetic head can no longer be accurately positioned. Hitherto, any head that is found[[,]] in the head test (HT)[[,]] to cause such magnetic breakdown is discarded[[,]] and not used in magnetic disk drives.

Please amend [Para 10] as follows:

However, a magnetic head that is found to be a good one in the test may reproduce a data waveform inverted in polarity with respect to a normal data waveform[[,]] in the final test carried out after the magnetic head has been incorporated into a magnetic disk drive. Consequently, the data signals or the servo signals that the head has reproduced are erroneous. This is probably because the magnetic head has ESD not so prominent as to cause waveform inversion and therefore passes the first test, and is incorporated into a magnetic disk drive, but receives a small impact as a result of ~~due to~~, for example, contamination, inevitably generating a inverse magnetic field and hence inverting the direction of magnetization of the GMR element. (The small impact is perhaps micro-ESD, which does not usually result in polarity inversion in the fixed layer of the GMR element.)

Please amend [Para 12] as follows:

To achieve the above-mentioned object, an apparatus for evaluating a magnetic head, according to the present invention, is designed to determine as to whether the fixed layer of the magnetic head has undergone inversion of <u>a</u> magnetization direction. The apparatus includes: a support unit that supports the magnetic head above a disk that is rotating and has bumps; a DC-current supplying unit that supplies a DC current to a write coil of the magnetic head, thereby thermally deforming an element part of the magnetic head and making the element part to protrude and abut on the bumps, thus applying an impact to the disk; and a magnetism-applying unit that applies a magnetic field to the top of a core slider of the magnetic head when the element part abuts on the bumps, said magnetic field extending in a direction opposite to the magnetization direction of the fixed layer.

Please amend [Para 15] as follows:

A method of evaluating a magnetic head, according to the present invention, is designed to determine as to whether the fixed layer of the magnetic head has undergone inversion of <u>a</u> magnetization direction. In the method, the magnetic head is supported above a disk that is rotating and has bumps. A DC current is supplied to a write coil of the magnetic head, thereby thermally deforming an element part of the magnetic head and making the element part [[to]] protrude and abut on the bumps, thus applying an impact to the disk. A magnetic field is applied to the top of a core slider of the magnetic head when the element part abuts on the bumps,

thereby to determine as to whether the fixed layer of the magnetic head has undergone inversion of magnetization direction. The magnetic field ~~extending~~ extends in a direction opposite [[to]] the magnetization direction of the fixed layer.

Please amend [Para 17] as follows:

In [[the]] this method, the disk may have bumps formed in a region extending in a radial direction and arranged at predetermined intervals in a circumferential direction. In the first and second Dibit waveform-acquiring steps, the magnetic head may be supported above a region of the disk, where no bumps are formed. In the impact-applying step, the magnetic head may be supported above the region of the disk, where the bumps are formed.

Please amend [Para 21] as follows:

As described above in detail, the present invention can provide a method of evaluating a magnetic head[[,]] which ~~scarcely~~ minimally damages the element part of the magnetic head. Although the method is very simple, the method can prevent the fixed layer of the GMR element from undergoing inversion of magnetization direction after the magnetic head is incorporated into a magnetic disk drive. Thus, any magnetic disk drive that has a magnetic head evaluated by this method as a good one can be very reliable, scarcely causing damage in the field ~~damages~~.

Please amend [Para 31] as follows:

FIG. 1 is a diagram illustrating a method of evaluating magnetic heads, according to an embodiment of the invention. FIG. 2 is a block diagram of an apparatus for evaluating magnetic heads, according to another embodiment of this invention. FIG. 3 is a plan view depicting a disk that is used in the present embodiment. FIG. 4 is a perspective view of one of the laser [[bump]] <u>bumps</u> used in the present embodiment. FIG. 5 is a diagram explaining an algorithm of the method of evaluating magnetic heads[[,]] according to this embodiment. FIGS. 6A and 6B are diagrams representing the PIN inversion observed at the laser bump shown in FIG. 4.

Please amend [Para 33] as follows:

As shown in FIG. 2, the apparatus for evaluating magnetic heads according to [[the]] <u>another</u> embodiment comprises a support unit 7, a write-coil-current supplying unit 8, a bar magnet 4, a sense-current supplying unit 9, a voltage-detecting unit 11, and an oscilloscope (voltage-monitoring unit) 12. The support unit 7 supports the GMR head 1 above the laser-bump disk 2 that is rotating. The write-coil current supplying unit 8 supplies a DC current to the write coil of the GRM head 1 through the support unit 7, thereby thermally deforming the head element and causing the same to protrude. The bar magnet 4 is held above the GMR head 1 and applies a magnetic field (2,470 Gauss) to the top of the core slider 5 when the head element abuts on the laser-bump disk 2. The magnetic field extends in the direction opposite [[to]] the magnetization direction of the fixed layer. The sense-current supplying unit 9 supplies a sense

current. The voltage-detecting unit 11 detects the voltage applied when the sense current is supplied. The oscilloscope 12 is connected to the voltage-detecting unit 11, to display the voltage detected by the unit 11, and observe a Dibit waveform.